UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/502,454	05/23/2005	Kari Hjelt	617-011882-US (PAR)	3689

2512 7590 08/01/2007

PERMAN & GREEN
425 POST ROAD
FAIRFIELD, CT 06824

EXAMINER	
PATEL, PUNAM	
ART UNIT	**PAPER NUMBER**
2855	
MAIL DATE	**DELIVERY MODE**
08/01/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/502,454	HJELT ET AL.	
	Examiner	Art Unit	
	Punam Patel	2855	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of,37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 June 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *26-54* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *47 and 48* is/are allowed.

6)☒ Claim(s) *26-38,40,42,43,49 and 50* is/are rejected.

7)☒ Claim(s) *39, 41, 44-46, and 51-54* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *23 July 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 06/21/2007 has been entered.

Claim Objections

Claims 30, 35, and 45 are objected to because of the following informalities:

Claims 30 and 35 contain the limitation "the acceleration sensor." There is insufficient antecedent basis for this limitation in the claim since the independent claim recites the limitation of at least two acceleration sensors.

Claim 45 contains a typographical error. The limitation of "the identity of detector" will be read as "the identity of the detector."

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 26-28, 30-36, 38, 40, 42, 43, 49, and 50 are rejected under 35 U.S.C. 102(b) as being anticipated by Seidel (US 6,122,965).

With respect to Claims 26, 28, 30-32, and 49, Seidel et al. teach, in Figure 1 and the Abstract, a method with an apparatus comprising a group of at least two acceleration sensors arranged on one carrier:

wherein each acceleration sensor comprises a first body portion (#5, the frame), a second body portion (#3a-d, configured to move when an external force affects it, see Fig. 2), an interconnecting element (#4a-d) making the first body portion integral with the second body portion and a detector (#7, the Wheatstone bridge) arranged on the interconnecting element (Fig. 1, wherein the conductive path/strip is at a distance from the second body portions) for giving an indication when a breakable component (#4a-d) of the sensor is ruptured (a rupture of the bending beam is understood to result in an infinite resistance output); and

wherein at least two of the sensors are oriented differently from one another, such that a first sensor is more sensitive than a second sensor to a force in a first direction, and the second sensor is more sensitive than the first sensor to a force in a second direction different to the first direction (col. 1, lines 52-57).

With respect to Claim 27, Seidel et al. teach the group comprising acceleration sensors responding to forces in at least three different directions (Abstract, line 1).

With respect to Claim 33, Seidel et al. teach apparatus, wherein the indication is stored in a memory (column 4, lines 19-25).

With respect to Claims 34 and 40, Seidel et al. further teach the apparatus, wherein the indication is remotely readable (column 4, lines 19-25, wherein the read-only memory of the microprocessor is understood to be remotely readable). It is understood that a status of the apparatus depends on the indication.

With respect to Claims 35 and 36, Seidel et al. teach the apparatus comprising a surface mountable brittle material (#10). Note that the manner of making an apparatus is not given patentable weight in an apparatus claim, however Seidel et al. teach utilizing micromachining technology (col. 2, lines 59-65).

With respect to Claim 38, Seidel et al. teach the indication containing at least information identifying a detecting loop broken by an external acceleration force (col. 4, lines 18-20, wherein each sensor has a separate output and thus is identifiable).

With respect to Claim 42, Seidel et al. teach all of the sensors of the group are integrated in a single block (see Fig. 1).

With respect to Claim 43, Seidel et al. teach the apparatus, wherein an acceleration of any of the sensors of the arrangement is remotely identifiable (column 4, lines 19-34, wherein the

read-only memory of the microprocessor is understood to be remote and allows the identification of acceleration of any of the sensors).

With respect to Claim 50, Seidel et al. further teaches registering in a non-volatile memory a status of the breakable component of each sensor (col. 4, lines 20-25, wherein the read only memory is read as a non-volatile memory).

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Seidel et al. (US 6,122,965) in view of Andersson (US 5,723,790).

With respect to Claim 29, Seidel et al. teach the piezoresistor detector (#7, the Wheatstone bridge) being disposed on the interconnecting element (Fig. 1), fail to teach the material/method of attaching the piezoresistors on the silicon wafer (#10). Andersson teaches an acceleration sensor wherein the piezoresistors are doped onto a silicon substrate (col. 8, lines 5-10). It would have been obvious to one of ordinary skill in the art to apply the piezoresistors of Seidel et al. by doping the silicon, as taught by Andersson, in order to form piezoresistors/detectors by a well known method in the art of semiconductor processing.

Claim 37 is rejected under 35 U.S.C. 103(a) as being unpatentable over Seidel et al. (US 6,122,965).

With respect to claim 37, Seidel et al. fail to teach utilizing polycrystalline silicon in the acceleration sensor. It would have been obvious to one of ordinary skill in the art at the time of the invention to select polycrystalline silicon for micromachining, since it has been held to be within the general skill of a worker in the art of semiconductor device manufacturing to select a notoriously well known brittle material on the basis of its suitability/availability. Note that the manner of making an apparatus is not given patentable weight in an apparatus claim, however Seidel et al. teach utilizing micromachining technology (col. 2, lines 59-65).

Allowable Subject Matter

Claims 47 and 48 are allowed.

Claims 39; 41, 44-46, 51-54 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

With respect to Claims 39, 44-46, and 54, the prior art fails to teach the device wherein the time at which the interconnecting element/breakable element (understood to be the same structural element) ruptures.

With respect to Claim 41, the prior art fails to teach the device wherein the indication of the interconnecting element/breakable element (understood to be the same structural element) rupturing is given as a warning to a user.

With respect to Claim 47, the prior art fails to teach the device wherein the indication of the interconnecting element/breakable element (understood to be the same structural element) rupturing is given to a user of a handheld terminal that comprises the device. Claim 48 depends on Claim 47.

With respect to Claim 51, the prior art fails to teach the method wherein the status of the breakable element is registered at when a device that comprises the acceleration sensor is turned on and off. Claims 52 and 53 are dependant upon claim 51.

Response to Arguments

Applicant's arguments, see page 10, lines 6-8 and 18-26, filed on 06/21/2007, with respect to the rejection(s) of claims 26-28, 30-34, 40, 42, 43, 49, and 50 under 35 U.S.C. 103 (a) being unpatentable over Seidel et al. (US 6,122,965) in view of Shinji (JP 62036561) have been fully considered and are persuasive. The *deformation* of the piezoresistors cannot be read as a breaking or rupturing.

Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of a different interpretation of the term "breakable" (see Claim 26, line 6) & the applicant's argument that the interconnecting means and the breakable component are the same element (Applicant's arguments, see page 9, filed on 10/10/2006).

In response to applicant's argument that the bending beams of Seidel et al. do not break or rupture during normal use, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. Seidel et al.'s bending beams, #4a-d, are understood to be breakable, since they are a thinned section of a brittle silicon wafer, #10 & since the size of the bending beam is quite smaller than that of the inertial mass, #3a-d. Support for this interpretation of the term "breakable" is found in Applicant's Specification: page 4, lines 11-14 & page 6, lines 15-16. Furthermore, given the structural configuration and material of the bending beam, 4, there must be a predetermined force that results in a plastic deformation of the beam.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (usable data) are not recited in the rejected claims. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Claim 26 recites that the detector gives "an indication" when the breakable member is ruptured. The infinite resistance output/break in the conductive path from the detector of Seidel et al., #7 the Wheatstone bridge, is read as "an indication" of a break in the bending beam, #4a-d. Furthermore, it may be assumed, arguendo, that the infinite resistance output is usable data since it indicates a failed state of the device.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Holm-Kennedy et al. (US 5,095,762) teach a 3-axis accelerometer wherein the accelerometer comprises a polycrystalline silicon layer for forming the piezoresistor detector. Patent Abstract of Japan (JP01163673) discloses a similar semiconductor device.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Punam Patel whose telephone number is (571) 272-6794. The examiner can normally be reached on Monday to Friday 9:30 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Lefkowitz can be reached on (571) 272-2180. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

PP
07/25/2007

MICHAEL CYGAN, Ph.D.
PRIMARY EXAMINER